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ABSTRACT

This module on applying learning theory to vocational education is one of a set of three on curriculum design in vocational education and is part of a larger series of thirty-four modules constituting a core curriculum intended for use in the professional preparation of vocational educators in the areas of agricultural, business, home economics, and industrial education. Following the module objective and overview and a bibliography of suggested resource materials (readings) for the entire module, five lessons are presented: (1) examining what is meant by learning; (2) identifying and describing various learning theories; (3) determining how learning theories are related to education; (4) determining how learning theories are related to vocational education; and (5) relating how an understanding of learning theory is essential for developing curriculum design in vocational education. Each lesson contains the objective, overview, a list of suggested learning activities, and a list of suggested resources (readings). Concluding the module is a pre/posttest and an answer key. (The modules have been field tested in various educational settings, including bachelor and masters degree programs, and are considered adaptable to many instructional styles and student entry levels. CE 018 935-937 contain working papers and other materials used in the development of the module series.) (JH)

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ED163274

Common Core Curriculum
for Vocational Education

E-2

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

Module Writer: Dwayne Schramm, Ph.D.

Category E:

CURRICULUM DESIGN IN VOCATIONAL EDUCATION

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1978

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CE 018 961

ABOUT THIS MODULAR CURRICULUM

This module is one of a series of 34 modules intended for use in the professional preparation of vocational educators in the vocational education service areas of agricultural, business, home economics, and industrial education. The curriculum can be adapted to various styles of instruction and to various entry-levels of students.

It is recommended that an instructor planning to use these modules review each category to determine if any modification is needed in the objectives and suggested activities so that they conform with local institutional policies and/or vocational education programs. It is also suggested that resources and activities be identified for the specific entry-level of the student to be served.

The activities listed are suggested. The use of any other activity or reading reference which the instructor believes would help to accomplish the objectives of that lesson is encouraged. The choice of the teacher to use the entire module, either through group reports or individualized assignment, will be related to individual student competency requirements.

Since many modules strongly recommend the use of local administrative personnel and community resources, it is suggested that all site visitations and requests for assistance in the community be coordinated by or cleared through the instructor. The instructor may wish to distribute these tasks among the student group and across the community with the class report system being used to disseminate the information gathered.

These modules have been field tested in various settings. They have been used with students working toward a bachelor's or master's degree and with students seeking the designated subjects credential in California. Some modules were tested through student independent study, others as part of total class assignment, and still others as an alternate activity. Workshop participants examined the materials in terms of content, activities, and resources. The adaptability of this curriculum is one of its strengths.

The materials could not have been completed without the participation and contribution of many individuals. Chief among these persons were the module writers, workshop participants, field-test instructor, and students. Conference presentors and evaluators also contributed to this project. Proceedings of the workshop are available upon request.

If we can provide you with information or help in using this curriculum, please feel free to contact us.

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COMMON CORE CURRICULUM

FOR

VOCATIONAL EDUCATION

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APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

Module Objective

Upon the completion of this module, the student will have studied various theories of learning and will have applied these theories to vocational education. Specifically, upon satisfactory completion of the module, the student will be able to do the following:

(1) Identify and describe what is meant by "learning."

(2) Identify and describe various learning theories.

(3) Describe how learning theories are related to education.

(4) Describe how learning theories can be applied in vocational education.

(5) Relate how an understanding of learning theory is essential for developing curriculum design in vocational education.

Module Overview

The material to be learned can be provided; the climate for learning can be established; and an incentive for wanting to learn can be made available. But only the learner on her/his own is able to have the learning experience. What is this process that is called "learning?" How does it come about? Answers to those questions should be found as a result of a person's studying this module.

In studying the learning process, the student will find that there are many theories concerning the learning process. Some theories supplement others. Various theories are more appropriate than others for certain kinds of activities. Why should a teacher have an understanding of the various kinds of learning theories? What effect does it have upon her/his teaching activities if she/he knows about the process of learning? Answers to those questions, too, should be developed in the process of working through this module.

Once a prospective teacher has developed a philosophy about the learning process, how does she/he relate that knowledge to education in general and

vocational education in particular? And how does this knowledge help the vocational educator in her/his concerns with curriculum design?

This module has been arranged so that answers to the questions just raised might be found in the following lessons:

Lesson 1: Examing what is meant by "learning."

Lesson 2: Identifying and describing various learning theories.

Lesson 3: Determining how learning theories are related to education.

Lesson 4: Determining how learning theories are related to vocational education.

Lesson 5: Relating how an understanding of learning theory is essential for developing curriculum design in vocational education.

Note:

The activities for this module have been developed at two different levels as an aid to those instructors preparing students for the Designated Subject Credential and for the Bachelor's and/or Master's Degree. This does not preclude the use of this module for other preparation in vocational education.

Resource Materials for Completing the Activities in this Module

Doll, Ronald C. Curriculum Improvement: Decision-Making and Process. Belmont, California: Allyn and Bacon, 1970, 35-84.

Erickson, Lawrence W. "Motivation for Learning in Vocational Education," The Individual and His Education. (Second Yearbook) ed. Alfred E. Krebs. Washington, D. C.: The American Vocational Association, 1972, 93-104.

Gagne, Robert M. "Learning Theory, Educational Media, and Individualized Instruction," The Curriculum: Content, Design, and Development, ed. Richard Hooper. Edinburgh: Oliver & Boyd, 1971, 299-319.

Hooper, Richard (ed.). The Curriculm: Context, Design, and Development. Edinburgh: Olivery & Boyd, 1971, 281-288, 289-298.

Pittenger, Owen and C. Thomas Gooding. Learning Theories in Educational Practice: An Integration of Psychological Theory and Educational Philosophy. New York: John Wiley & Sons, 1971, 121-166.

Saylor, J. Galen, and William M. Alexander. Planning Curriculum for Schools. New York: Holt, Rinehart, and Winston, 1974, 127-142.

Seagoe, May. The Learning Process and School Practice. Scranton, Pennsylvania: Chandler Publishing Company, 1970, 1-10 and 201-207.

Selected Articles. American Vocational Journal, 50, No. 8 (1975), 30-44.

Strauss, Sidney. "Learning Theories of Gagne and Piaget: Implications for Curriculum Development," Teachers College Record, 74, No. 1, (1972), 81-102.

Tanner, Daniel and Laurel N. Tanner. Curriculum Development. New York: Macmillan, 1975, 118-141.

Teske, Philip R. "Designing Vocational Curricula for the Individual." The Individual and His Education. (Second Yearbook) ed. Alfred H. Krebs. Washington, D. C.: American Vocational Association, 1972, 52-64.

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

Lesson One: Examining What is Meant by "Learning"

Objective

Upon the satisfactory completion of this lesson, the student will be able to: (1) define what is meant by "learning," and (2) identify what is meant by the cognitive and affective domains in the learning process.

Overview

Many definitions have been given for the term "learning." Most of them can be captured in one or two sentences. For example, Webster's Collegiate Dictionary defines "learning" as "the act or experience of one that learns" or "knowledge or skill acquired by instruction or study." May Seagoe speaks about learning as being "how behavior is changed through experience." Ralph Tyler says "education is a process of changing the behavior patterns of people." John Dewey referred to education as "that reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience."

Regardless of how the definition of learning is stated, it is certain that learning is the result desired of an educational process. In order to develop that necessary quality, then, it is essential to know just what it is one is attempting to develop. For that reason, the student will examine in this lesson the elements of the learning process so that she/he can develop her/his understanding of what is meant by "learning."

Suggested Activities

Level One (The students in the Designated Subject Credential component of "The Learning Process" and students in the Master of Arts in Vocational Education Program must complete all the activities described under Level One.)

Note: Before completing any written work in this lesson, check with your instructor who may wish to discuss the topic with you or may want you to have a discussion with other members of the class on an individual or a group basis.

(1) Read Chapter 2, "Varieties of Learning," The Conditions of Learning, 2nd Edition, by Robert M. Gagne. Holt, Rinehart and Winston, Inc., 1970, pp. 33-69.

(2) Read "A Condensed Version of the Cognitive Domain of the Taxonomy of Educational Objectives," The Curriculum: Context, Design and Development, as Edited by Richard Hooper, Oliver & Boyd, 1971, pp. 281-288.

(3) Read "A Condensed Version of the Affective Domain of the Taxonomy of Education Objectives," The Curriculum: Context, Design and Development, as Edited by Richard Hooper, Oliver & Boyd, 1971, pp. 289-298.

(4) Using the "eight types of learning" as described by Robert Gagne in The Conditions of Learning as a guide, identify the eight types in writing and after each state an example of a learning activity that is descriptive of that type of learning.

Level Two (Students in the Master of Arts in Vocational Education program must complete activity No. 1 and either Activity No. 2 or No. 3.)

(1) Read "The Nature of the Learner as Source and Influence for Educational Objectives and Curriculum," Curriculum Development, by Tanner and Tanner, Macmillan Publishing Company, 1975, pp. 118-141.

(2) Using the reading material assigned on cognitive domains from The Curriculum: Context, Design and Development and Curriculum Development, develop a paper which lists the major categories and sub-categories of the cognitive domain. Under each sub-category identify the process by giving a specific example of that kind of learning activity.

(3) Using the reading material assigned on affective domains from The Curriculum: Context, Design and Development and Curriculum Development, develop a paper which lists the major categories of the affective domain. Under each category identify the process by giving a specific example of that kind of learning activity.

Suggested Resources

Gagne, Robert M. The Conditions of Learning, 2nd Edition. Rinehart and Winston, Inc., 1970, pp. 33-69.

Hooper, Richard (ed.). The Curriculum: Context, Design and Development. Oliver & Boyd, 1971, pp. 281-288 and pp. 289-298.

Tanner, Daniel and Tanner, Laurel N. Curriculum Development. Macmillan Publishing Company, Inc., New York, 1975, pp. 118-141.

Upon successful completion of assigned activities, proceed to Lesson 2.

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

Lesson Two: Identifying and Describing Various Learning Theories

Objective

Upon the satisfactory completion of this lesson, the student will be able to identify and describe various learning theories advocated by educational psychologists.

Overview

In Lesson One, it was seen that not everyone defines "learning" in the same manner. Similarly, all educators do not view the learning process in the same way. Many noted psychologists have developed their individual theories of learning. Since learning is such an intangible phenomenon, it is understandable that different interpretations of the learning process have been made.

However, despite the differences in interpretations of the learning process, the various theories espoused tend to complement each other. By knowing the arguments behind an espoused learning theory, one understands the process of learning to a greater extent.

This lesson is designed to examine several learning theories and to identify their contributions to the learning process.

Suggested Activities

Level One (The student in the Designated Subject Credential component of "The Learning Process" and students in the Master of Arts in Vocational Education Program must complete all the activities described under Level One.)

Note: Before completing any written work in this lesson, check with your instructor who may wish to discuss the topic with you or may want you to have a discussion with other members of the class on an individual or a group basis.

(1) Read Robert M. Gagne, "Learning Theory, Educational Media, and Individualized Instruction," The Curriculum: Context, Design and Development, as Edited by Richard Hooper, Oliver & Boyd, pp. 299-319.

(2) Using the assigned reading material as background, write a paragraph on the learning theories espoused by each of the following: N. E. Miller, B. F. Skinner, D. P. Ausubel, and Robert M. Gagne.

Level Two (Students in the Master of Arts in Vocational Education program must complete either of the two following choices: (1) Activity No. 1 and No. 2, or (2) Activity No. 3.)

(1) Using the library resources that are available to you, read about the learning theories espoused by one of the following psychologists:

John Dewey	I. P. Pavlov
May Seagoe	Donald Snygg
Jean Piaget	Edward L. Thorndike
W. F. Hill	Arthur Combs

(2) Write a one-page summary of your readings concerning the learning theory espoused by the person you selected to read about in Activity No. 1.

(3) Read Sidney Strauss, "Learning Theories of Gagne and Piaget: Implications for Curriculum Development," Teachers College Record, Volume 74, No. 1, September 1972, pp. 81-102. Present a summary of your reading orally to your instructor and/or class, whichever is appropriate.

Suggested Resources

Gagne, Robert M. "Learning Theory, Educational Media, and Individualized Instruction," The Curriculum: Context, Design and Development, as Edited by Richard Hooper. Oliver & Boyd, 1971, pp. 299-319.

Strauss, Sidney. "Learning Theories of Gagne and Piaget: Implications for Curriculum Development," Teachers College Record, Volume 74, No. 1, September 1972, pp. 81-102.

Upon successful completion of assigned activities, proceed to Lesson 3.

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

Lesson Three: Determining How Learning Theories Are Related to Education

Objective

Upon the satisfactory completion of this lesson, the student will be able to describe how learning theories are related to education.

Overview

Previous lessons have identified and described various learning theories. This lesson will attempt to put into perspective the usefulnees of knowing about learning theories in relation to the educational process.

Knowing about various learning theories just for the sake of knowing what they are and who espoused them is meaningless unless that information can be applied. Unfortunately, such pedantic behavior does take place; an individual may know much about learning theories but fails to apply them. In a similar manner, the opposite may be true. An individual may be applying learning theory unknowingly despite a lack of knowledge about learning theory; however, she/he could probably be doing a better job of application if she/he had some understanding of learning theories and could then feel confident that she/he is following theoretically sound educational procedures.

Suggested Activities

Level One (The students in the Designated Subject Credential component of "The Learning Process" and students in the Master of Arts in Vocational Education Program must complete all the activities described under Level One.)

Note: Before completing any written work in this lesson, check with your instructor who may wish to discuss the topic with you or may want you to have a discussion with other members of the class on an individual basis.

(1) Read pp. 1-10, "The Learning Process and the Teacher," The Learning Process and School Practice, by May Seagoe, Chandler Publishing Company, 1970.

(2) Read pp. 201-207, "Implications of Psychology of Learning for Teaching," The Learning Process and School Practice, by May Seagoe, Chandler Publishing Company, 1970.

(3) Choose four of the 38 implications of psychology of learning for teaching found on pages 201-207 of The Learning Process and School Practice by May Seagoe, and develop in writing examples of classroom situations for each in which the psychological principle involved can be practically applied. Be realistic and practical in your examples. Here is an example:

Implications No. 17 refers to "Using competition chiefly as self-competition against the student's own record." The vocational education teacher in a typewriting class may be wanting students to increase their accuracy rates in typewriting. In setting goals for the students, the teacher might direct each student to attempt to type the next timed writing with one less error than she/he had previously if the total errors on a five-minute timing for that student previously had been more than 10 errors for the five minutes. For those who had no more than 10 errors for the five minutes, the teacher could direct students to maintain their accuracy rate or improve it if possible. Such direction could be given as opposed to direction which said "Everyone try to type for five minutes with just a total of two errors as Jackie Doe did as our 'A' student."

Level Two (Students in the Master of Arts in Vocational Education program must complete both of the activities listed below.)

(1) Read "Congruent Philosophies and Theories," Learning Theories in Educational Practice: An Integration of Psychological Theory and Educational Philosophy, by Owen Pittenger and C. Thomas Gooding. John Wiley & Sons, Inc., 1971, pp. 121-166.

(2) Upon the completion of the reading assigned in Activity No. 1, write a one-page, double spaced paper giving your interpretation of how the various learning theories described in the reading material are reflected in the educational system of our country.

Suggested Resources

Pittenger, Owen and C. Thomas Gooding. Learning Theories in Educational Practice: An Integration of Psychological Theory and Educational Philosophy. John Wiley & Sons, Inc., 1971, pp. 121-166.

Seagoe, May. The Learning Process and School Practice. Chandler Publishing Company, 1970, pp. 1-10 and 201-207.

Upon successful completion of assigned activities, proceed to Lesson 4.

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

Lesson Four: Determining How Learning Theories Are Related to Vocational Education

Objective

Upon the satisfactory completion of this lesson, the student will be able to describe how learning theories can be applied in vocational education.

Overview

Having examined learning theory and having viewed its application to the educational process, the student is ready to apply learning theory in an additional area--that of vocational education. The learning theories apply to vocational education as well as general education since vocational education is basically an extension of general education.

It may be easier to see the application of learning theory to vocational education because of its practical nature. Vocational education rests heavily in the cognitive and psychomotor domains of learning, and these domains are easier to identify because of their concreteness.

The purpose of this lesson is to use the background gained in previous lessons on learning theory as a basis for understanding how learning theory can be applied to vocational education.

Suggested Activities

Level One (The students in the Designated Subject Credential component of "The Learning Process" and students in the Master of Arts in Vocational Education program must complete all the activities described under Level One.)

Note: Before completing any written work in this lesson, check with your instructor who may wish to discuss the topic with your or may want you to have a discussion with other members of the class on an individual or group basis.

(1) Read Lawrence W. Erickson, "Motivation for Learning in Vocational Education," The Individual and His Education. Second Yearbook of the American Vocational Association. Edited by Alfred H. Krebs, pp. 93-104.

(2) The article by Lawrence W. Erickson in Activity No. 1 involves learning theory and motivation. Write a short paper (no more than two pages, double spaced) describing how your area of interest in vocational education can meet the seven conditions of

learning which affect motivation for learning as were listed by Erickson. Those seven conditions are:

a. Active Learner Participation

b. The Learning Task and the Task Set

c. Simple-to-Complex Learning Progression

d. Motivational Variables

e. Reinforcement

f. Transfer

g. Evaluation

Level Two (Students in the Master of Arts in Vocational Education program must complete both of the activities listed below.)

(1) Read the following articles from the November, 1975, issue of the American Vocational Journal:

a. "Toward Effective Instruction for Every Learner," by Mary Elizabeth Milliken, pp. 30-31.

b. "Unshackling the Learner," by Charles I. Jones, pp. 32-33.

c. "How to Make Evaluation a Learning Process," by Aleene A. Cross, pp. 34-36.

d. "A Personalized System of Vocational Education," by Angelo C. Gilli, Sr., pp. 37-39.

e. "Teacher Competencies That Open the Way," by Gene Bottoms, pp. 41-44.

(2) With the reading in Activity No. 1 as background along with other reading you have done relating to learning and learning theories, write a short paper (no more than two pages, double spaced) on how you view the relationship of learning and learning theories to vocational education.

Suggested Resources

Erickson, Lawrence W. "Motivation for Learning in Vocational Education," The Individual and His Education. Second Yearbook of the American Vocational Association, Edited by Alfred H. Krebs, 1972, pp. 93-104.

Selected Articles. American Vocational Journal, Volume 50, No. 8, November 1975.

Upon successful completion of assigned activities, proceed to Lesson 5.

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

Lesson Five: Relating How an Understanding of Learning Theory is Essential For Developing Curriculum Design in Vocational Education

Objective

Upon the satisfactory completion of this lesson, the student will be able to relate how an understanding of learning theory is essential for developing curriculum design in vocational education.

Overview

Learning and learning theories are an integral part of the consideration that is given to the construction of curriculum design in vocational education. So that a cohesive picture of curriculum design is given, this lesson will help the learner to integrate what he knows about curriculum design with learning and learning theories.

The learner is the one crucial element in curriculum design. Without the learner, curriculum design would be unnecessary. Therefore, in this lesson, particular attention will be given to the learner and how she/he fits into curriculum design. A broad range of learners will be considered including those from the elementary school age through adult stages. Since career education and vocational education is of a concern to all ages, it is then fitting to include all age groups in this consideration of learning in the curriculum design in vocational education.

Suggested Activities

Level One (The students in the Designated Subject Credential component of "The Learning Process" and students in the Master of Arts in Vocational Education program must complete all the activities described under Level One.)

(1) Read pp. 127-142, in "Sources of Data for Curriculum Planning," Planning Curriculum for Schools, by J. Galen Saylor and William M. Alexander. Holt, Rinehart and Winston, Inc., 1974.

(2) Read pp. 35-64, in "Psychological Bases for Curriculum Decisions," Curriculum Improvement: Decision-Making and Process, by Ronald C. Doll. Allyn and Bacon, Inc., 1970.

(3) Using the reading in Activities No. 1 and No. 2 as background, be prepared to discuss orally in a seminar setting those psychological principles which should be brought into focus when decision-making about curriculum takes place.

Level Two (Students in the Master of Arts in Vocational Education program must complete both of the activities listed below.)

(1) Read Philip R. Teske, "Designing Vocational Curricula for the Individual," The Individual and His Education. Second Yearbook of the American Vocational Association, Edited by Alfred H. Krebs, 1972, pp. 52-64.

(2) From the information presented in the reading of Activity No. 1, record those concepts which were presented as being basic to planning vocational curriculum designs. As a concluding paragraph to this written paper, tell how you view the knowledge of learning theory as being essential to the development of curriculum design in vocational education.

Suggested Resources

Doll, Ronald C. Curriculum Improvement: Decision-Making and Process. Allyn and Bacon, Inc., 1970, pp. 35-64.

Saylor, J. Galen, and William M. Alexander. Planning Curriculum for Schools. Holt, Rinehart and Winston, Inc., 1974, pp. 127-142.

Teske, Philip R. "Designing Vocational Curricula for the Individual," The Individual and His Education. Second Yearbook of the American Vocational Association, Edited by Alfred H. Krebs, 1972, pp. 52-64.

Upon completion of the assigned activities in this module, you should be ready to take the Module Posttest. See your instructor for directions and measurement criteria.

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

MODULE PRE/POSTTEST

Student_____

Instructor_____

Date_____

Student: This pre/posttest is designed to assess your knowledge of theories of learning and their relationship to curriculum design. Since this module is an individual and competency-based learning device, you will need to study only those lessons that are presented on the basis of your response to this test.

1. State your definition of "learning."

2. Robert Gagne is a modern educational psychologist who has defined eight types of learning. Below are listed four of those eight types. Define each and given an example of a classroom learning activity that is descriptive of that type of learning.

   a. Stimulus-Response Learning:

      Classroom Example:

   b. Verbal Association:

      Classroom Example:

   c. Concept Learning:

      Classroom Example:

Pre/Posttest (continued)

d. Rule Learning:

Classroom Example:

3. B.S. Bloom has classified educational goals for the cognitive domain in the Taxonomy of Educational Objectives, Handbook I; and B. S. Bloom, D. R. Krathwohl, and B. B. Masia have classified educational goals for the affective domain in the Taxonomy of Educational Objectives, Handbook II. In separate paragraphs define what is referred to as the cognitive domain and the affective domain.

a. Cognitive Domain:

b. Affective Domain:

4. Identify a well-known educational psychologist or philosopher who has espoused a theory of learning. Describe the theory this individual has espoused.

5. Describe the significance of knowing how learning theories are related to education.

Pre/Posttest (continued)

6. State five psychological principles involved in learning that would be necessary for a teacher to understand for effective teaching. Also give examples of how these principles might be applied effectively in the classroom.

   Here is an example to help you identify the kind of information you are being asked to present.

   Principles: Proceed from the simple to the complex in task assignments.

   Classroom Application: In a typewriting classroom, a student may be asked to type a letter from copy presented in model form in a textbook. After mastering that task, the student may be asked to type a letter from copy in which the form has not been arranged. Upon mastery of that task, the student may be asked to type a letter from copy that is unarranged and in addition needs to have the necessary punctuation and capitalization supplied. In such procedures, the student starts with a relatively simple task and then proceeds to the more difficult as each succeeding task is mastered.

   a. Principle:

      Classroom application:

   b. Principle:

      Classroom application:

   c. Principle:

      Classroom application:

Pre/Posttest (continued)

d. Principle:

Classroom application:

e. Principle:

Classroom application:

7. Listed below are seven conditions of learning which would affect a student's motivation for learning. Describe three of these conditions of learning and relate them to your area of interest in vocational education by citing a specific example where they might be applied. The seven conditions of learning from which you are to select three are as follows:

a. Active Learner Participation

b. The Learning Task and the Task Set

c. Simple-to-Complex Learning Progression

d. Motivational Variables

e. Reinforcement of Learning

f. Transfer of Learning

g. Proper Use of Evaluation of Learning

Pre/Posttest (continued)

a.

b.

c.

Return this test to your instructor.

APPLYING LEARNING THEORY TO VOCATIONAL EDUCATION

ANSWER KEY
MODULE PRE/POSTTEST

Instructor:	Do not reproduce this page in students' booklets. You must retain it for grading and prescriptive purposes. Answers will vary with individuals. A preferred response might be similar to the answer presented.

1. (L1) Definitions of "learning" will vary considerably, but suitable answers might be:

"Learning" is the situation where one's behavior is changed through a particular experience.

OR

"Learning" is the sum total of one's experience.

2. a. Stimulus-response learning: This is the kind of learning that involves making very precise movements or actions in response to specific stimuli. They are most often involved in voluntary motor acts.

Classroom example: When the timing clock in a typewriting classroom bell sounds at the end of a timing, it serves as a stimulus for the students to respond by stopping their typing.

b. Verbal association: This kind of learning is most associated with the name of objects, things, actions, or ideas. Then further associations are made with the item named.

Classroom example: In an industrial arts class, the term "ohm" could be defined as the mks (meter-kilogram-second) or electric resistance to the resistance of a circuit in which a potential difference of one volt produces a current of one ampere. The "naming" of this process as an "ohm" can be used thereafter as a verbal association.

c. Concept learning: Learning a concept means learning to classify stimulus situations in terms of abstracted properties like color, shape, position, number, and size. Concept learning also takes place from verbal cues rather than by reference to directly observable objects.

Pre/Posttest Answer Key (continued)

Classroom example: In a home economics class in housing a student may develop a concept of an "orientation of the house on the lot" through consideration of climatic conditions.

d. Rule learning: Rule learning is a result of relationships between two or more concepts. This kind of learning necessitates knowing concepts first before their application can be made to a rule. For example, a rule to be learned might be that "the pronoun each takes a singular verb." Before this rule can be learned, one must know the concepts of what constitutes pronouns (and that each is a pronoun) and what constitutes singular verbs; then these two concepts can be put together into a rule.

Classroom example: In a bookkeeping/accounting class, the rule to be learned may be that "increases in assets must be debited." To learn this rule, the learner must know the concepts of what are assets, what is debiting, and what are increases; then these concepts can be put together in a relationship to one another for rule learning.

3. (L1) Definitions of the cognitive domain and the affective domain:

a. Cognitive domain: The cognitive domain refers to the classification of various levels of learning which range from the outright recall of facts to the evaluation of given situations. The lowest level of learning, known as knowledge, refers to recall of facts, terms, and principles; the next highest level, known as comprehension, reveals an understanding of material by having one explain in her/his own words; the next highest level, known as application, has the learner use previously learned facts in a new situation. The next highest level, known as analysis/synthesis, requires the learner to gather facts from multiple sources and determine possible courses of action. The highest level, known as evaluation, requires the learner to judge which data or actions are appropriate for a given situation.

b. Affective domain: The affective domain refers to the classification of learning where the learner not only recalls information but also responds to it and gives some sort of value and characterization to the information. At the lowest level, known as receiving, the learner is aware of some situation; the student is usually passive at this stage. The next level, known as responding, has the learner actively attending the process. The next level, known as valuing, has the student analyzing the worth of the activity and formulating an attitude. From this point, the learner enters high-level responding by planning to exhibit the desired behavior, known as organizing, and eventually by consistently exhibiting the behavior, known as internalizing.

Pre/Posttest Answer Key (continued)

4. (L2) Students will have a wide variety of answers for this item and might include educational psychologists or philosophers such as John Dewey, May Seagoe, Jean Piaget, Edward L. Thorndike, or Donald Snygg.

A representative answer might be: Robert M. Gagne is an educational psychologist whose learning theory espouses that there are distinctive conditions for different kinds of learning. He classifies these different kinds of learning and says that learners may partake in any or all of these types of learning. He contends that there is cumulative learning which relies upon the principles that the learning of any new capability builds upon prior learning. This learning is possible, according to Gagne, only if there have been specific minimal prerequisite learnings.

5. (L3) The significance of knowing how learning theories are related to education concerns the fact that the teacher works with a knowledge of learning principles, and these principles provide a set of tools to use in constructing a wide variety of learning situations. All learning theories have something to contribute. For example, when we think of learning in the sense of mastery of subject matter, then the stimulus-response psychologists have much to offer. When we think of learning as problem solving and understanding, then the cognitive theorists have much to offer. No one theory of learning explains all the facts of the learning process as they apply to education and teaching, but the theories complement each other in placing emphasis on various aspects of learning.

6. (L3) Students' answers will vary considerably with this item. The best reference for this item is from May Seagoe's book, pages 201-207, on "Implications of Psychology of Learning for Teaching," The Learning Process and School Practice. Chandler Publishing Company, 1970.

A representative answer for the five examples might be:

a. Principle: Help students set their own standards for accomplishment.

Classroom application: In a class of Ornamental Horticulture, students might be required to learn the common names of 20 plants. Beyond that, the teacher might help individual students set additional goals of learning more than the minimum number required or of learning the botanical names of the plants.

b. Principle: Use positive reinforcement in activities you wish the learner to remember and repeat.

Classroom application: In a child development laboratory, observe and identify examples of positive reinforcement as used by the nursery school instructor.

Pre/Posttest Answer Key (continued)

c. Principle: Use the classroom audience to increase the strength of motivation.

Classroom application: In a woodworking classroom, a student might demonstrate the use of a plane in shaping wood surfaces. After the demonstration, the teacher could ask the class members to present positive comments about the demonstration.

d. Principle: Vary the order and context in which material is presented.

Classroom application: In the shorthand class it is very important that students know how to write and transcribe brief forms extremely well. The recitation of these brief forms can be varied from doing it at the first of the class period, to the middle, to the end. The order might be varied from the way they are presented in the text (first to last), to reverse order, to random selection.

e. Principle: Encourage the learner to solve problems for himself.

Classroom application: In an agriculture class, a student might be given seeds for three varieties of marigolds. His "charge" is to determine which of the varieties is best for growing in a hot climate considering the following factors: (1) quantity of blooms, (2) quality of blooms, (3) length of time between planting and the first bloom, and (4) lasting quality of the blooms both for an individual blossom and for the seasonal life of the plant.

7. (L4) Student's answers will vary considerably with this item. The best reference for this items is from Lawrence W. Erickson's article, "Motivation for Learning in Vocational Education," found on pages 93-103 of the Second Annual Yearbook of the American Vocational Association entitled, The Individual and His Education, 1972.

Sample responses of descriptions of three conditions of learning which would affect motivation for learning might be:

a. Active Learner Participation. The student should become an active participant in the learning process. At times students need to work at their own pace; at other times they need the stimulation of group work, of doing something with other students. An example of this kind of participation in learning might be related to the use of the 10-key adding machine. The learner does need to learn individually how to operate the machine by the touch method and after doing so might be a part of a group project where his performance on the machine is a part of a series of events.

Pre/Posttest Answer Key (continued)

b. The Learning Task and the Task Set. It is important that each learning task assigned to students be made as meaningful as possible. The learner must know "why" he should learn to do things in a certain way as well as know "how" he should perform effectively. Learners make the most rapid learning gains if they have formed some concept of the learning task they are to perform. An example of this kind of participation may be in an industrial arts class where the task set is that of using a blueprint as the beginning of a task which culminates in the completion of a wood object.

c. Simple-to-Complex Learning Progression. By accomplishing learning tasks that are within the learner's capabilities, the learner's motivation is increased and his subsequent learning is enhanced. An example of this kind of learning might be in a foods class where students are asked to make relatively simple items first and then gradually build up to the degree of sophisticated cooking where they can plan and serve a complete meal.

MODULES -- COMMON CORE CURRICULUM FOR VOCATIONAL EDUCATION

Category A: Introduction to Vocational Education

- A-1 History, Philosophy, and Trends in Vocational Education
- A-2 Scope, Function, and Organization in Vocational Education
- A-3 Vocational Legislation
- A-4 Assessing the Job Market and Employment Trends

Category B: Cooperative Relationship

- B-1 Rationale for Cooperative Relationships
- B-2 Advisory Councils
- B-3 Cooperative and Work Experience Programs

Caregory C: Vocational Students

- C-1 Promoting Vocational Education and Recruiting Eligible Students for Vocational Education
- C-2 Assessing Students' Personal Characteristics
- C-3 Guidance and Counseling
- C-4 Assisting Students with Special Needs in Vocational Education Program
- C-5 Assessing the Needs of the Disadvantaged Student
- C-6 Developing Student Leadership Qualities in Vocational Education Programs
- C-7 Student Organizations

Category D: Administration and Supervision

- D-1 Fiscal Management of a Vocational Education Program
- D-2 Writing a Vocational Education Project/Budget
- D-3 Record Keeping in Vocational Programs
- D-4 Conference Leadership
- D-5 Selection, Supervision, and Evaluation of Personnel
- D-6 School Law and Its Relationship to Vocational Education
- D-7 Staff Development
- D-8 Implementation of Change

Category E: Curriculum Design in Vocational Education

- E-1 Developing a Curriculum Design in Vocational Education
- E-2 Applying Learning Theory to Vocational Education
- E-3 Instructional Strategies

Category F: Stages and Structure of Curriculum Development

- F-1 Theories in Curriculum Development
- F-2 Building a Curriculum for Vocational Education
- F-3 Applying Curriculum Specifics to Vocational Education
- F-4 Safety

Category G: Evaluation and Research

- G-1 Evaluation Models
- G-2 Evaluation Procedures for Local Programs
- G-3 Introduction to Research Procedures in Vocational Education
- G-4 Research Design in Vocational Education
- G-5 Development of a Research Proposal in Vocational Education